

CLAIMS:

1. In conveyor apparatus for transporting generally flat articles, each comprising at least one flexible sheet, in succession from a source of supply to an inserting station of a top-loading newspaper and/or commercial inserting machine, the improvement comprising:

5 an article rotating portion operable while advancing each successive article along a path of travel toward the inserting station to rotate the article a predetermined amount about a longitudinal axis extending axially of said path of travel to reorient the article for presentation to the inserting station.

10 2. In conveyor apparatus as claimed in claim 1,
said article rotating portion including opposed lengths of conveyor belts disposed to receive and grip each article therebetween as they advance the article along said path of travel,
said opposed conveyor belt lengths being twisted about said longitudinal axis of the path of
15 travel.

3. In conveyor apparatus as claimed in claim 2,
each article having a width measured in a direction transverse to said path of travel,
said opposed conveyor belt lengths each having a width measured in a direction transverse
20 to said path of travel that is narrower than the width of each article,
said opposed conveyor belt lengths being disposed to engage each article generally centrally thereof.

4. In conveyor apparatus as claimed in claim 2,
25 said article rotating portion further including stationary guides adjacent said path of travel configured and arranged to engage and assist in rotating each article as it is advanced by said opposed conveyor belt lengths.

5. In conveyor apparatus as claimed in claim 4,
30 said guides comprising a plurality of opposed, elongated guide rods extending longitudinally of said path of travel.

6. In conveyor apparatus as claimed in claim 5,
said opposed conveyor belt lengths and said opposed, elongated guide rods being adapted to
rotate each article one-quarter turn.

5 7. In conveyor apparatus as claimed in claim 6,
each of said articles having an article axis that is normal to the plane of the sheet in the
article,
said source of supply being adapted to present the articles to the conveyor apparatus with said
article axis extending upwardly,
10 said conveyor apparatus further comprising an article turning portion operable while
advancing the articles along said path of travel to turn each article until its article axis
extends generally horizontally.

8. In conveyor apparatus as claimed in claim 7,
15 said article turning portion including opposed stretches of conveyor belts disposed to receive
and grip each article therebetween as they advance the article along said path of
travel,
said opposed conveyor belt stretches initially extending generally horizontally and thereafter
turning downwardly to turn the article until its article axis extends generally
20 horizontally.

9. In conveyor apparatus as claimed in claim 8,
said opposed conveyor belt stretches extending upwardly after initially extending generally
horizontally and before turning downwardly.

25 10. In conveyor apparatus as claimed in claim 1,
each of said articles having an article axis that is normal to the plane of the sheet in the
article,
said source of supply being adapted to present the articles to the conveyor apparatus with said
30 article axis extending upwardly,
said conveyor apparatus further comprising an article turning portion operable while
advancing the articles along said path of travel to turn each article until its article axis
extends generally horizontally.

11. In conveyor apparatus as claimed in claim 10,
said article turning portion including opposed stretches of conveyor belts disposed to receive
and grip each article therebetween as they advance the article along said path of
travel,

5 said opposed conveyor belt stretches initially extending generally horizontally and thereafter
turning downwardly to turn the article until its article axis extends generally
horizontally.

12. In conveyor apparatus as claimed in claim 11,
10 said opposed conveyor belt stretches extending upwardly after initially extending generally
horizontally and before turning downwardly.

13. In conveyor apparatus as claimed in claim 1,
said path of travel of the articles being upwardly arched.

15 14. In conveyor apparatus as claimed in claim 1,
said article rotating portion being operable to rotate each article one-quarter turn.

15. In conveyor apparatus as claimed in claim 1,
20 further comprising an article discharging portion immediately downstream from said article
rotating portion and operable to maintain each rotated article in its rotated condition
as it continues along said path of travel and is presented to said inserting station.

16. In conveyor apparatus as claimed in claim 15,
25 said article discharging portion including a pair of opposed, cooperating discharge conveyor
assemblies operable to grip each successive article therebetween and to advance the
article along said path of travel upon exiting from said article rotating portion,
said discharge conveyor assemblies being supported in a manner that permits the direction
of article discharge therefrom to be angularly adjusted.

17. In a method for use in transporting generally flat articles, each comprising at least one flexible sheet, in succession from a source of supply to an inserting station of a top-loading newspaper and/or commercial inserting machine, the improvement comprising:

conveying the articles in succession along a path of travel toward the inserting station; and
5 while the articles are advancing along the path of travel, rotating each article a predetermined amount about a longitudinal axis extending axially of the path of travel to orient the article for presentation to the inserting station.

18. In a method as claimed in claim 17,
10 each article being rotated approximately one-quarter turn.

19. In a method as claimed in claim 17,
said rotating step including gripping the article between a pair of opposed lengths of
15 elongated, driven conveyor belts that are twisted about their longitudinal axes.

20. In a method as claimed in claim 17,
said opposed conveyor belt lengths being substantially narrower than the width of each
article and being disposed to engage each article generally centrally thereof.

21. In a method as claimed in claim 19,
20 said rotating step further including engaging each article with stationary guides while the article is being advanced and rotated by the opposed conveyor belt lengths to assist in rotating the article.

22. In a method as claimed in claim 17,
25 said path of travel being upwardly arched, presenting an upwardly directed first leg spaced horizontally from the inserting station, a second leg in which the path of travel transitions from upwardly directed to downwardly directed, and a downwardly directed third leg vertically aligned with said inserting station.

23. In a method as claimed in claim 22,
30 said rotating step being carried out within said third leg of the path of travel.

24. In a method as claimed in claim 17,
each of said articles having an article axis that is normal to the plane of the sheet in the
article,
said source of supply being adapted to initially present the articles with said article axis
5 extending upwardly,
further comprising while the articles are advancing along the path of travel, turning each
article until its article axis extends generally horizontally.

25. In a method as claimed in claim 24,
10 said turning of the articles being carried out upstream from said rotating step.